Security Risks Associated with Network Based Physical Security Management Systems

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Introduction

A. The Issue

The evolution of physical security and access control systems has made it possible to integrate them into the corporate network architecture.

Advantages:

- Lower installation and maintenance costs than traditional hardwired systems
- Integrated information between security, HR, and other corporate data
- Ease of use

Disadvantages:

- Security
- Reliability

Introduction

Physical Security System Architectures

Stand alone systems

Hardwired systems with external access through dial-up/dial-back connections

- Expensive to install and maintain
- No unified database with HR and IT
- Very secure system

Introduction

Physical Security System Architecture

Stand alone systems

Dedicated LAN

This has most of the `Speed and advantages and disadvantages of a Hardwired system.

» Stability can be a problem depending upon the operating system.

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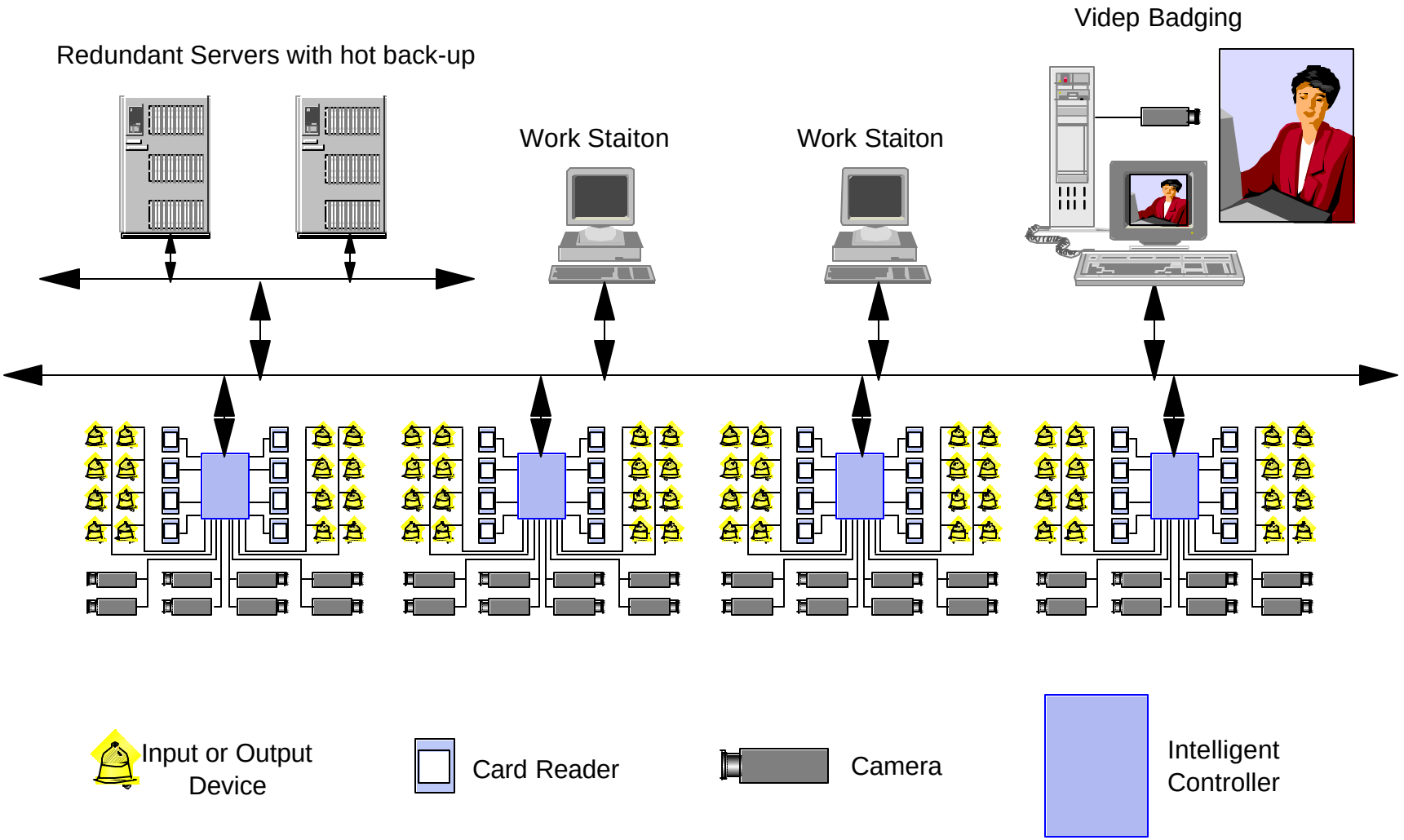
Dedicated Security Management System

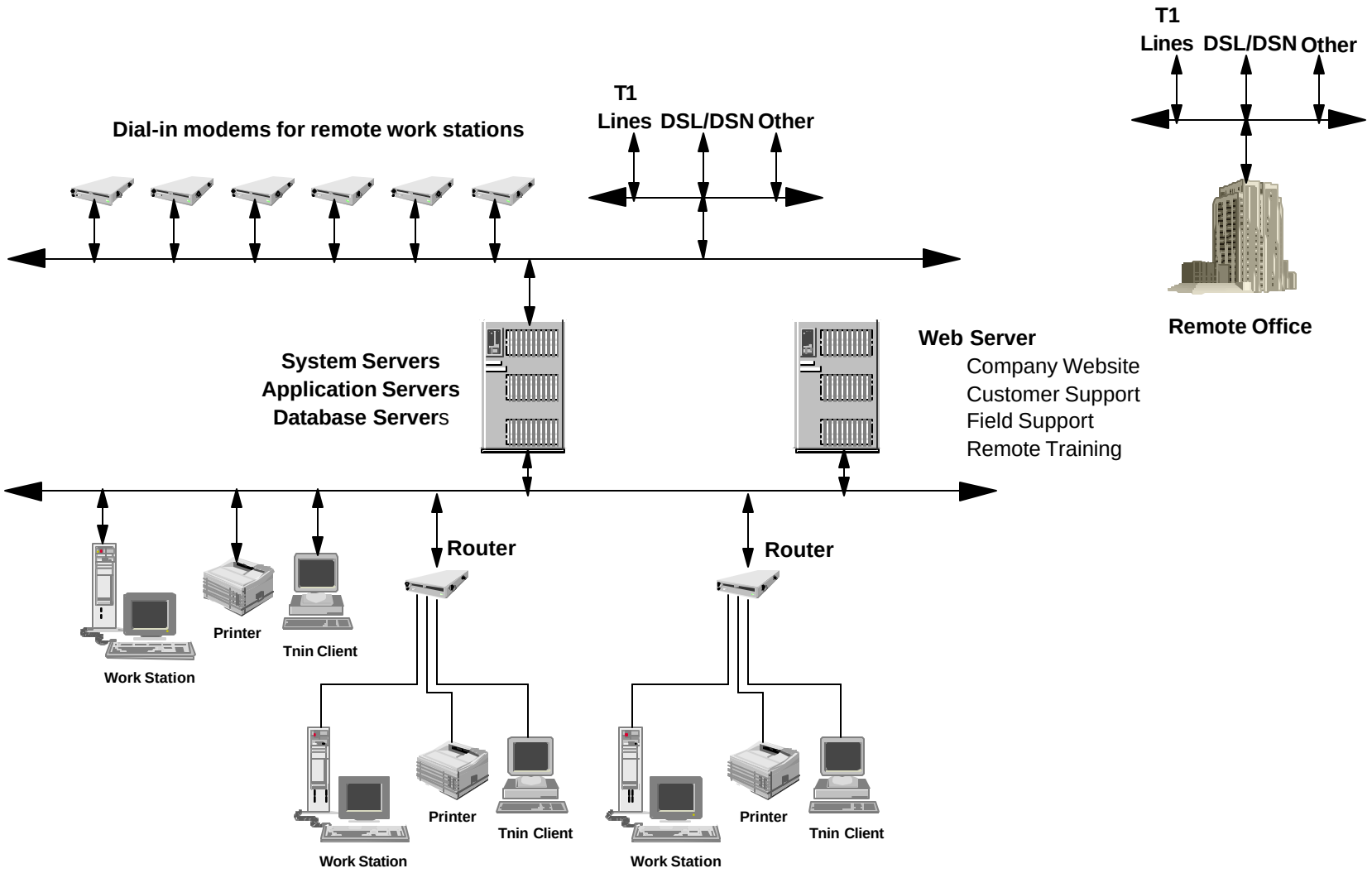


Introduction

A. Standard Network Architecture

2. Connectivity
   a. Hardwired
   b. Dial-in
   c. Web Access
   d. Wireless – 802.11b

Standard Network Architecture



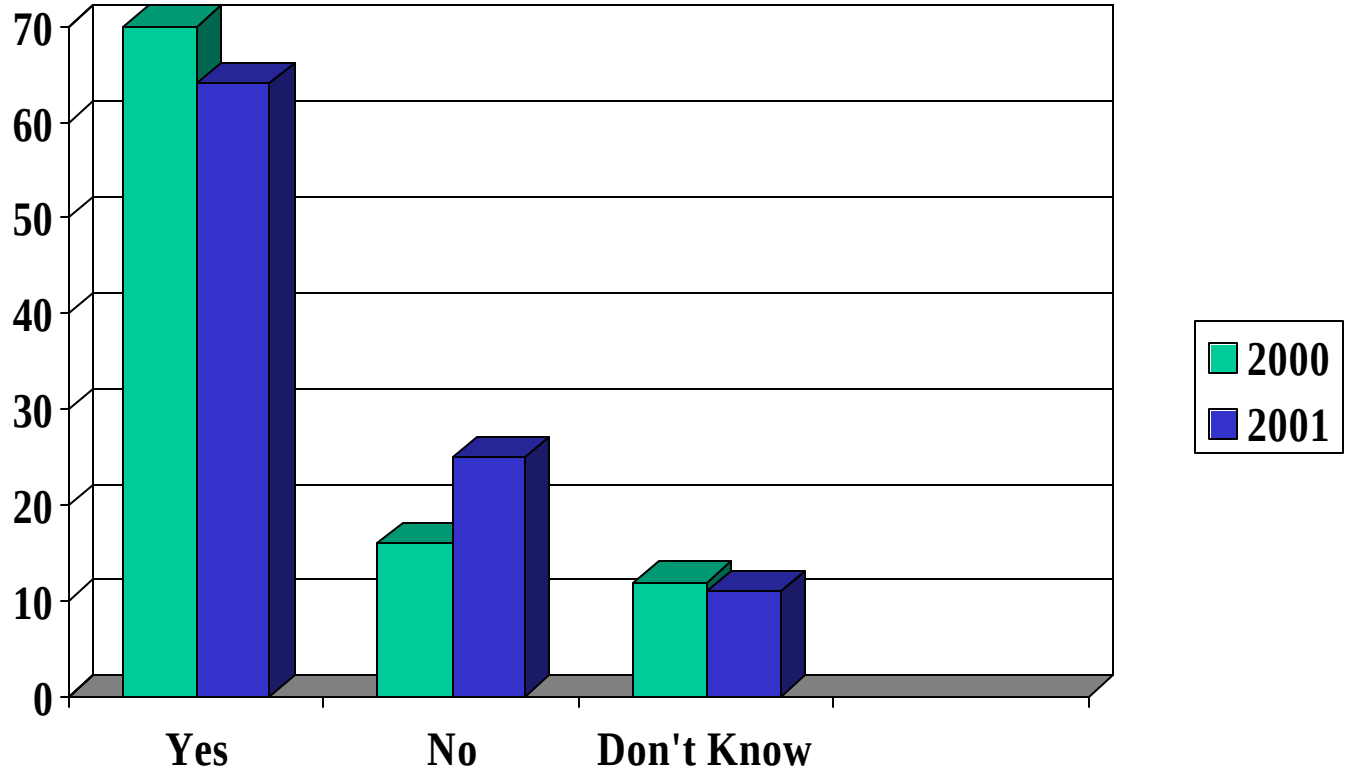
Network Security

Vulnerabilities

- Access to confidential data
- Data modification or destruction
- Denial of service

Network Security

Percentage of 538 computer security practitioners in U.S. Corporations, government agencies, financial institutions, medical institutions, and universities experiencing a network break-in.



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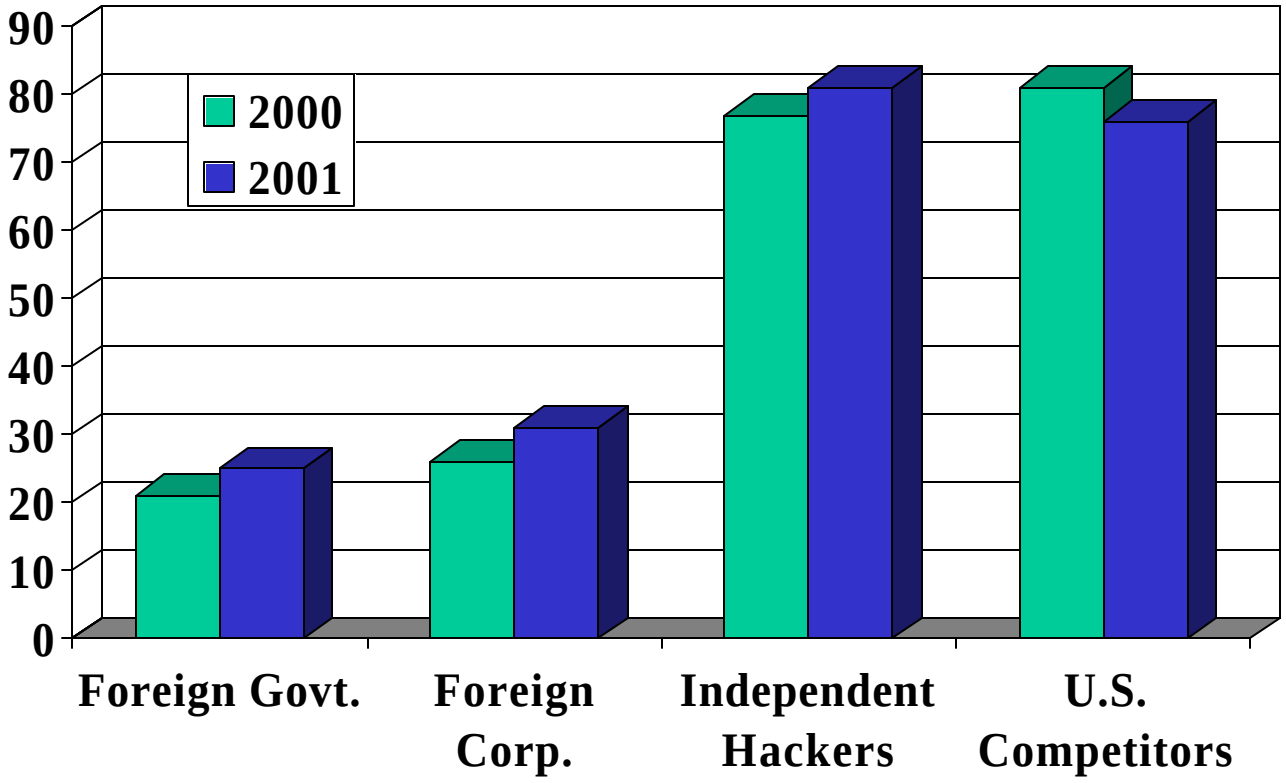
Network Security

External Threats



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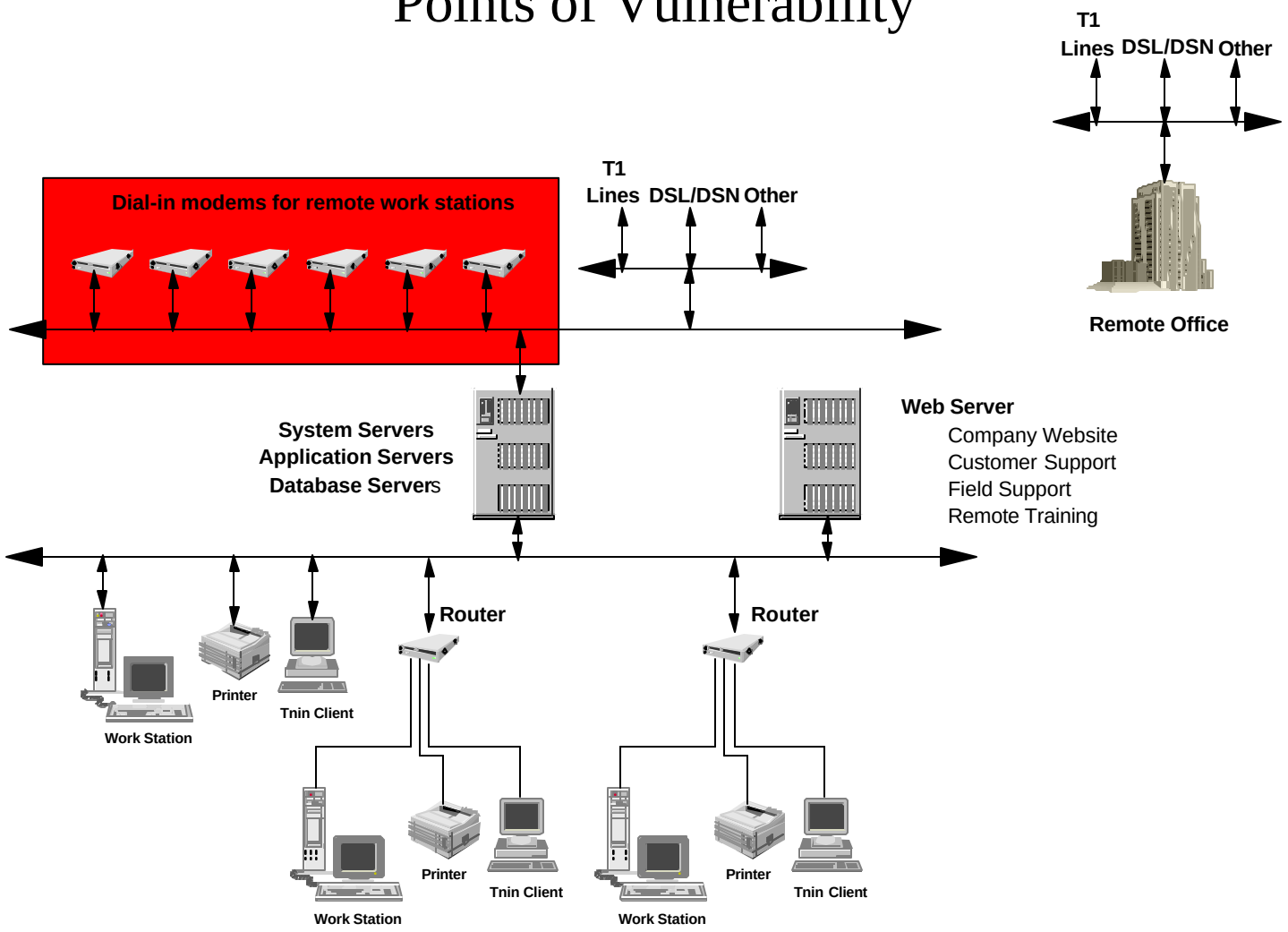
Typical Enterprise LAN/WAN

Points of Vulnerability

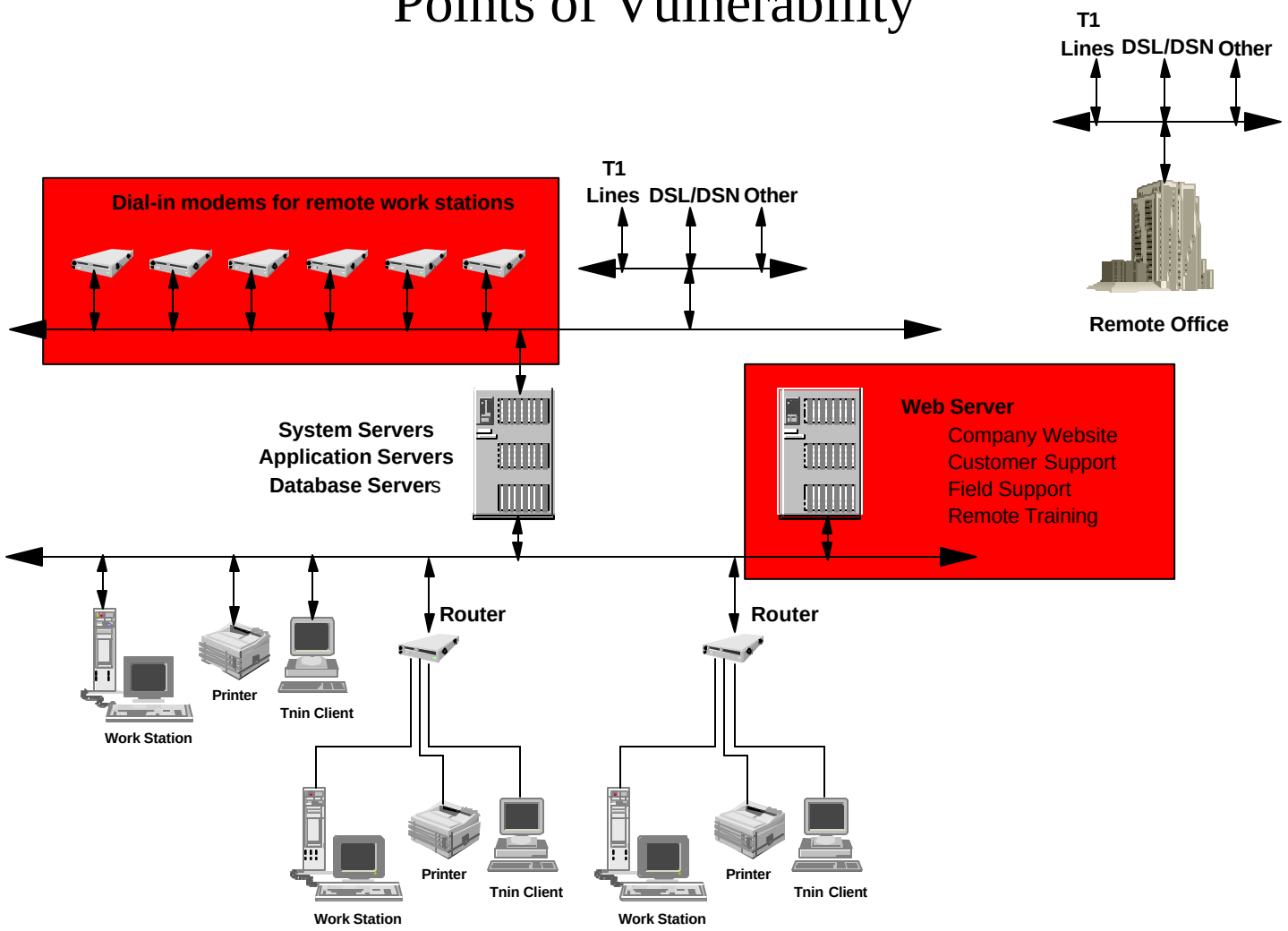


External Vulnerabilities

- Remote Dial-in
  - Simple password protection is not sufficient
    - Encrypted passwords are better
    - Password plus token is good security
      - Card
      - Synchronized counter
      - Biometric device
    - Automatic Dial-back to prearranged number

Typical Enterprise LAN/WAN

Points of Vulnerability



External Vulnerabilities

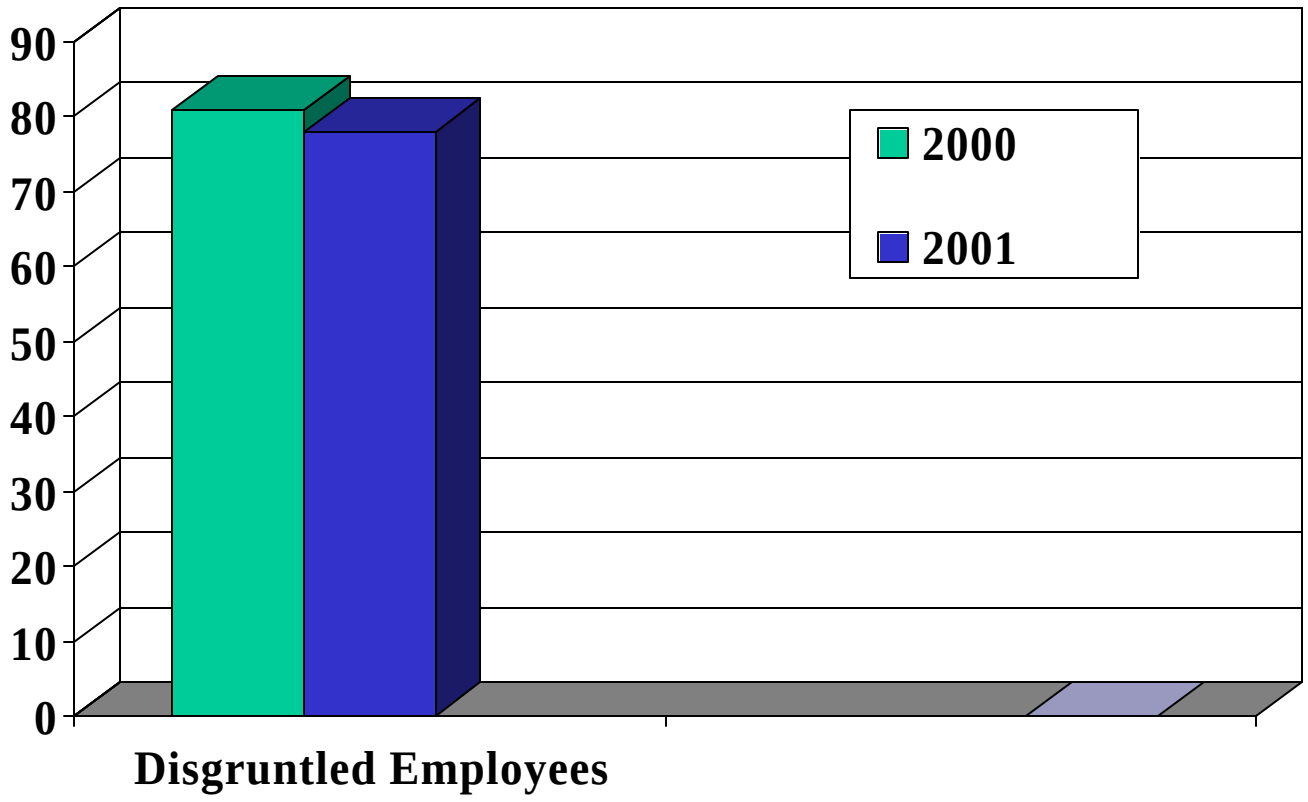
- Web Servers
  - Web Site Security receives relatively little attention yet can provide very easy access for even relatively unskilled hackers.
  - Make sure the material on the web site contains no links back to the main server.
  - Password protect the site.

External Vulnerabilities

- Web Servers
  - Encrypted Password plus token
  - VPN
  - Firewall
  - Remote Ticket

Network Security

Internal Threats



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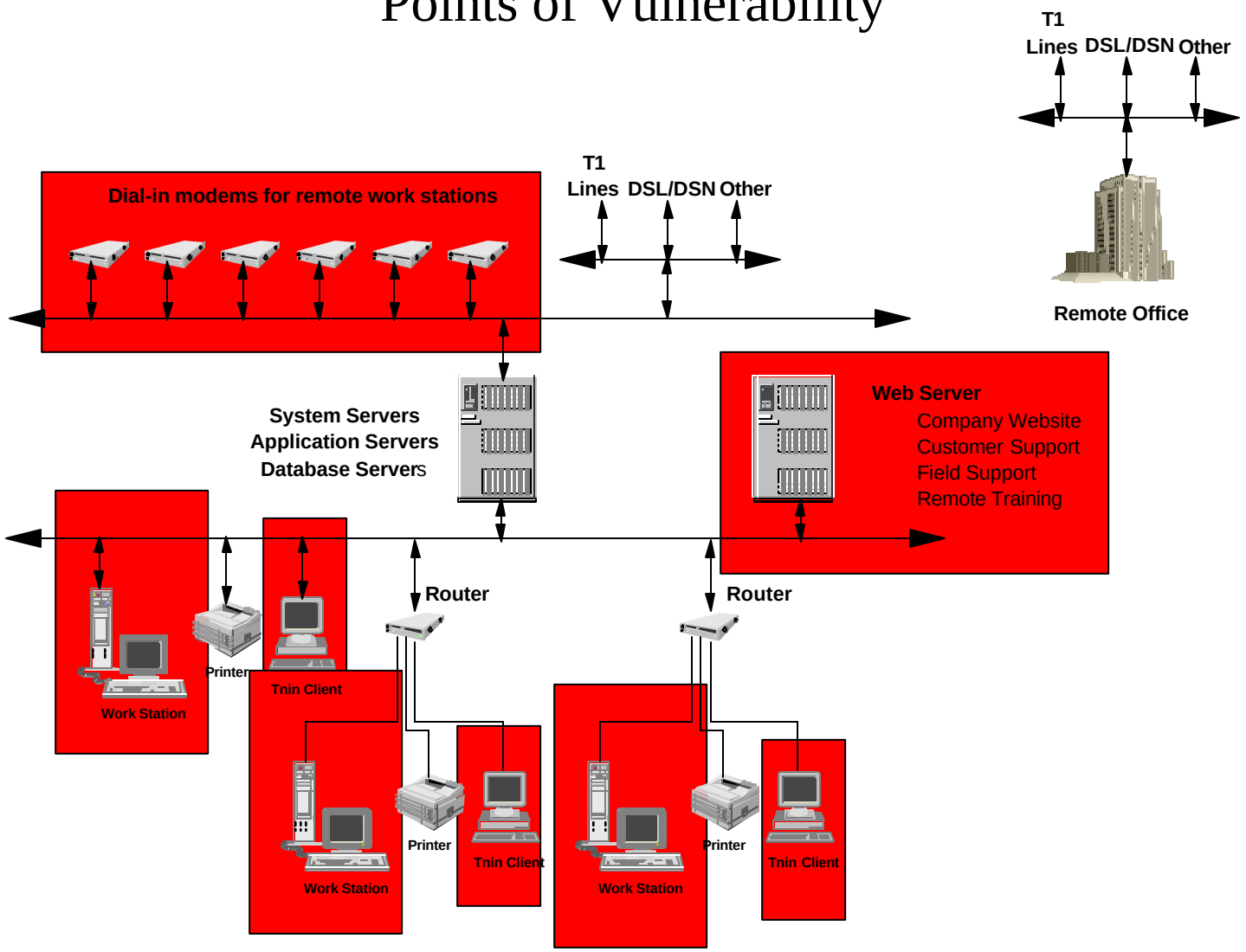
Typical Enterprise LAN/WAN

Points of Vulnerability

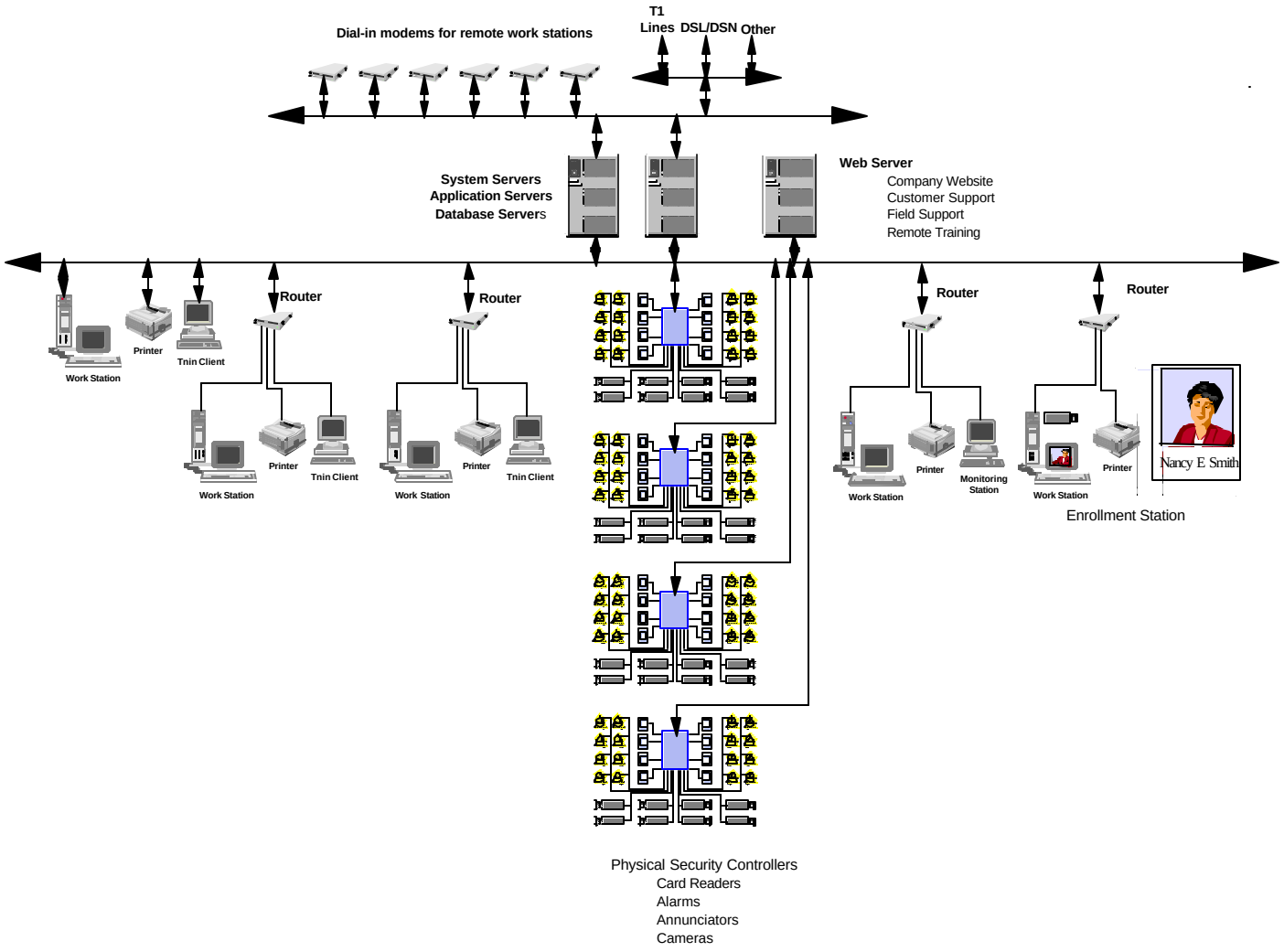


Network and Physical Security Together

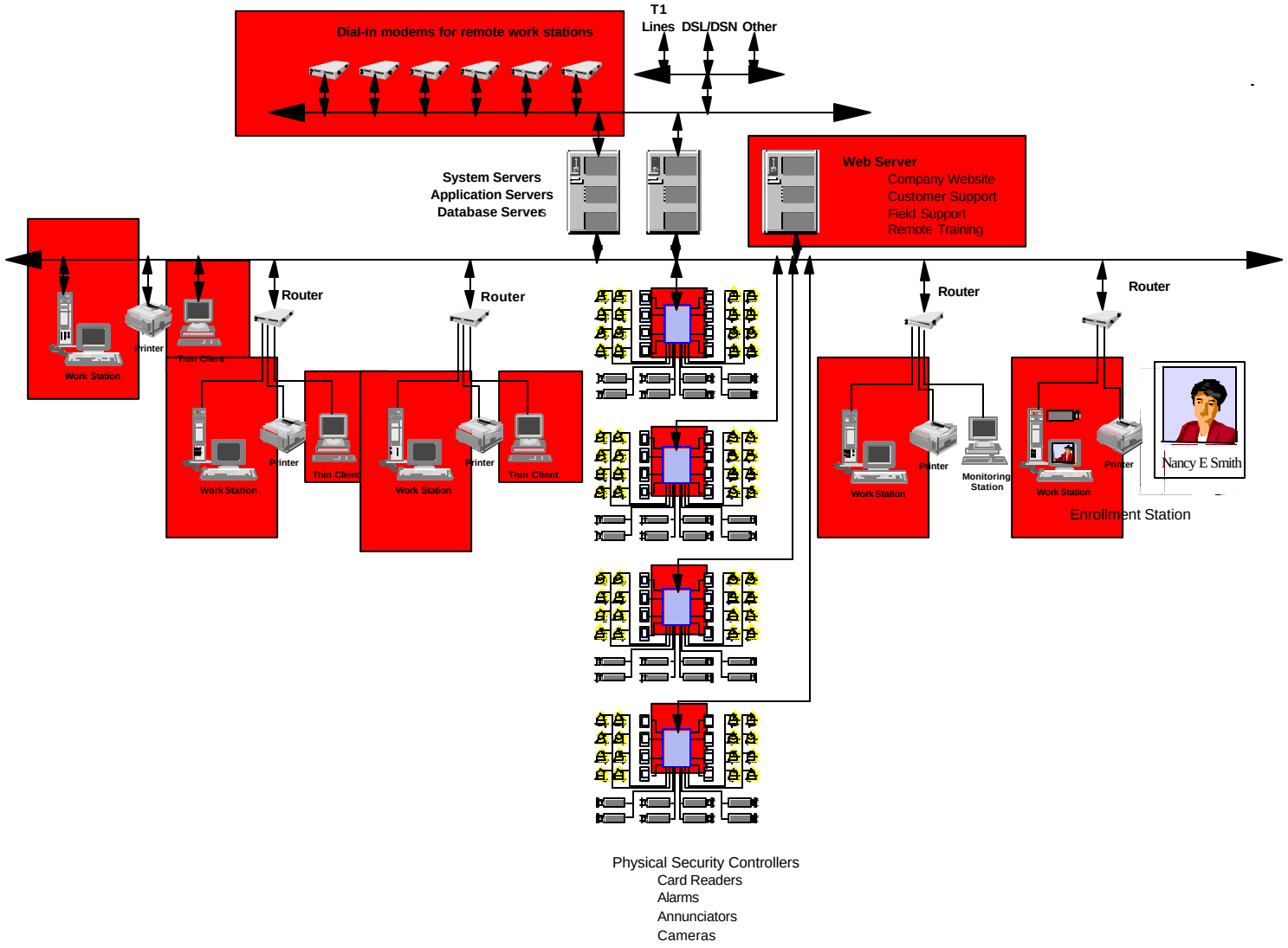
The Integrated System Picture

- The Risks Increase
  - All the risks associated with unauthorized file access plus
  - The additional risk of someone obtaining unauthorized physical access.

Integrated Physical Security and IT Network System



Enterprise LAN/WAN with Integrated Physical Security System



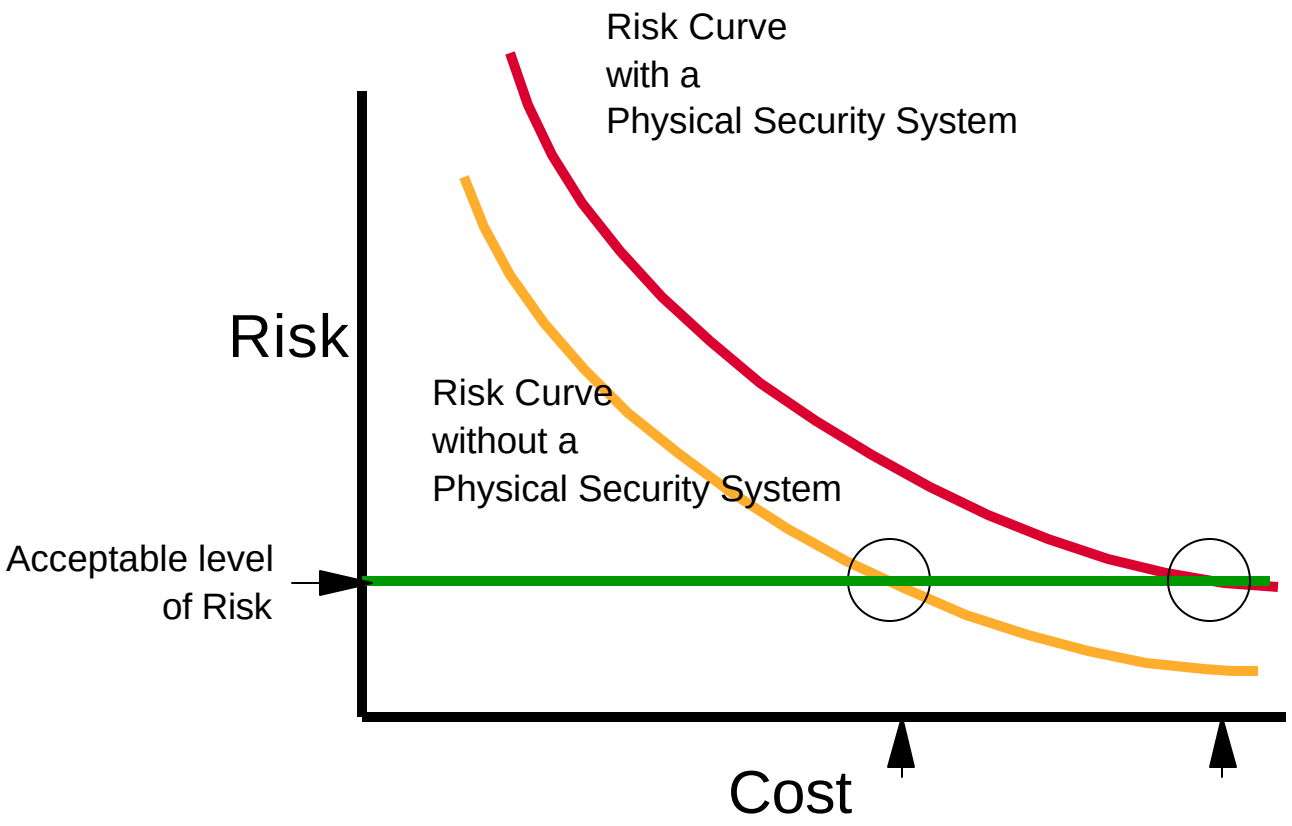
Network Security

Solutions

Network Security

Solutions

Risk vs Cost



Network Security
Solutions

- The three “A”s of successful security
  - Administration
  - Authority
  - Access

Network Security
Administration

- The three most important things for success:
  - Management
  - Management
  - Management

Network Security
Administration

- Physical Security Management and Network Management must work closely together:
  - Each must have a good understanding of and respect for the others objectives.
  - There must be a hand-in-glove working relationship. Good communication is everything.
  - There must be a clear policy and procedure for quickly resolving conflicts.

Network Security
Administration

- **OPRA -**The keys to successful management
  - Smart **Objectives**
    - Specific
    - Measurable
    - Achievable
    - Realistic
    - Time bound
  - A **Plan** to implement these objectives
  - The **Resources** to carry out the plan
  - **Accountability**

Network Security

Authority

- Just as there are access levels and time codes for a physical security access control system the same is required for a network security system.
- For most corporations this is a very hap-hazard process.
- If the physical security system is part of the enterprise network, network access control must be systematic, regulated, and monitored.

Network Security

Access Control

- The network administration system must support access levels and time codes with some method of reporting illegal access attempts by whom, when, and where.

Network Security

Tools of the Trade

- Access Control
  - Anti-Virus Software
  - Firewalls
  - VPN
  - External Ticketing
  - Passwords
  - Biometrics

Network Security

Tools of the Trade

- Authentication:
  - Passwords
  - Tokens
  - Biometrics
    - Fingerprint
    - Hand Geometry
    - Iris Scanning
    - Retinal Scanning
    - Facial Recognition
    - Voice Recognition
  - External Ticketing

Network Security

Tools of the Trade

- Administration
  - Access Control Software
  - Incident Reporting
  - Incident Tracking
  - Policies and Procedures
  - ISO 17799

Networks and Physical Security Systems

- In the end “There are no free lunches”
  - Significant cost savings and ease of operation
    - Versus
  - Significant up-front expense and administrative change.
- The key is “Know what you are getting into!”

Networks and Physical Security Systems

Thank you

William H. Sawyer, Ph.D.